UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,192	10/02/2003	Je-kook Kim	SAM-0454	8300

7590 12/10/2008

Steven M. Mills
MILLS & ONELLO LLP
Suite 605
Eleven Beacon Street
Boston, MA 02108

EXAMINER	
NGUYEN, LINH THI	

ART UNIT	PAPER NUMBER
2627	

MAIL DATE	DELIVERY MODE
12/10/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/677,192	KIM ET AL.	
	Examiner	**Art Unit**	
	LINH T. NGUYEN	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _12 September 2008_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-12 and 15-45_ is/are pending in the application.

4a) Of the above claim(s) _9-12,21-23 and 27-40_ is/are withdrawn from consideration.

5)☒ Claim(s) _20 and 41-45_ is/are allowed.

6)☒ Claim(s) _1-8, 15-19 and 24-26_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/12/08 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyazono (US Patent Number 5912867).

In regards to claim 24, Miyazono discloses a focus search method comprising: receiving a focus OK signal (Column 11, lines 9-12) and determining a logic state of the focus OK signal (Column 11, lines 16-27; if focus is successful or not); and generating waveforms for a focus search having different slopes based on the determination result (Figs. 8 and 9).

In regards to claim 25, Miyazono discloses a focus search method comprising:

receiving a focus OK signal; and if the focus OK signal is logic "low", generating a waveform for the focus search having a first slope (Column 11, lines 38-40), and if the focus OK signal is logic "high", generating a waveform having a second slope (Column 15, lines 23-32).

In regards to claim 26, Katayama et al discloses the focus search method of claim 25, wherein the first slope is greater than the second slope (Figs. 8 and 15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideyasu (JP Publication 2000348354) in view of Hashimoto et al (US Patent number 4328579).

In regards to claim 1, Hideyasu discloses a focus search method comprising: generating a sine wave (Fig. 1, element 12) in response to a focus search command (Fig. 1, 21); and performing a focus search by an optical pickup (Fig. 1, element 21 control the ZM 19 to drive the pickup unit 16 perpendicular) outputting a focus error (Fig. 1, element 14) signal in response to the sine wave is digitally generated from an impulse signal (Fig. 1, element 12), wherein the sine wave is generated independently of the focus error signal (Fig. 1, element 12 is independently from element 14).

However, Hideyasu does not disclose the sine wave is digitally generated by using a plurality of multipliers, a plurality of adders, and plurality of delay units.

Hashimoto et al discloses a digital sine-wave generator with plurality of multiplier, adders, and delays (Fig. 2). At the time of the invention it would have been obvious to a person of ordinary skill in the art to create a sine wave of Hideaysu to have multipliers, adders, and delays as suggested by Hashimoto et al. The motivation for doing so would have been generating a sin wave.

In regards to claims 2, 5 and 8, Hideyasu discloses the focus search, wherein a frequency and/or amplitude of the sine wave varies (Fig. 6) according to multiply factors of the plurality of multipliers (since the sine wave are generated by multipliers it is inherent that the wave varies according to multipliers).

In regards to claim 3, Hideyasu discloses the focus search method of claim 1, wherein after successfully performing the focus search, the optical pickup performs a focus servo (Paragraph [0007], lines 14-16).

In regards to claims 4 and 7, Hideyasu discloses a focus search method comprising: generating a sine wave (Fig. 1, element 12); and performing a focus search using an optical pickup that ascends or descends toward or from an optical disc in response to an amplitude of the sine wave (Fig. 1, element 12 is able to control ZM 19 to drive the PU up and down), wherein the sine wave is generated independently of the focus error signal (Fig. 1, element 12). Hideyasu does not but Hashimoto et al discloses the sine wave is digitally generated from an impulse signal by using a plurality of multipliers, a plurality of adders, and plurality of delays units (Fig. 2). The motivation is the same as claim 1 above.

In regards to claim 6, Hideyasu discloses the focus search method of claim 4, further comprising starting a focus servo after a focus-on point using the optical pickup (Paragraph [0007], lines 14-16).

Claims 15-17, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama (JP Publication 10055546) in view of Applicant Admitted Prior Art (AAPA).

In regards to claim 15, Katayama discloses a focus search method comprising: adding a waveform for a focus search (Figs. 2b or 4a) and the low-pass filtered signal during the focus search (Paragraph [0010] and [0015]), wherein the focus search starts from the low-pass filtered signal (Paragraph [0015]).

Katayama does not but AAPA discloses a focus search method comprising: outputting a signal output from a focus loop filter during a focus-on (Fig. 1, close loop to the focus driver. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the focus search method of Katayama to have a focus loop filter to start the focus search as suggested by AAPA. The motivation for doing so would have been to filter the data, therefore, easier to perform a focus search.

In regards to claim 16, Katayama discloses the focus search method of claim 15, wherein the low-pass filtered signal is held during the focus search (Fig. 4).

In regards to claim 17, Katayama discloses the focus search method of claim 15, wherein in the focus search method is, used even when a defective signal or an anti-shock signal is generated (Paragraph [0010]).

In regards to claim 19, Katayama discloses a focus search method comprising: driving an optical pickup in response to a signal during a focus on and if a focus drop occurs (FE) after the focus-on and a focus search is performed again (Paragraph [0014]; the time of search actuation of last time), performing the focus search from the signal output from the focus loop filter during the focus-on before the focus drop occurs using the optical pickup (Paragraph [0015]).

Katayama does not but AAPA discloses a focus search method comprising: driving an optical pickup in response to a signal output from a focus loop filter during a focus on (Fig. 1). The motivation is the same as claim 15 above.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al (JP Publication Number 10055546) in view of AAPA as in claim 15 above, further in view of Ishibashi et al (US Patent number 5848036).

In regards to claim 18, Hideyasu and Katayama does not but Ishibashi discloses the focus search method, wherein during the focus search (Fig. 1, element 7), the range of the waveform for the focus search (Fc) increases in proportion to the number of times the focus search is performed (Fig. 2). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the focus search method of Katayama and AAPA to include a focus search waveform increases in proportion to the number of times the search is performed during focus-on taught by Ishibashi. The motivation for doing so would have been to activate the focusing servo stably (Paragraph [0008]).

Response to Arguments

Applicant's arguments filed 2/15/08 have been fully considered but they are not persuasive.

In regards to claims 24 and 25, applicant argues that Miyazono does not disclose “the focus OK signal is logic low and the focus Ok signal is logic high." However, Miyazono discloses both focus OK signal when the logic is low (Column 11, lines 37-45) when the logic is high (Column 15, lines 50-60). Applicant argue about the **speed** of the logic low and high but the claims does not disclose the limitation. Therefore, claims 24-26 are not patentable in view of Miyazono.

In regards to claims 1, 4 and 7, applicant argues that Hashimoto et al does not discloses "a sine wave using a plurality of multipliers, a plurality of adders and plurality of delay units." However, that is not persuasive. Hashimoto et al does discloses a sine wave using a plurality of multipliers, a plurality of adders and plurality of delay units (Fig.

2, in the box “digital sine-wave generator” has multipliers 44a-d, adders 45 and 47, and delay units 43 and 46). Also, Hashimoto et al reference is used to disclose only the components (multipliers, adders, and delays) of a sine wave generator to combine with Hideyasu sine wave generator which is driven by an impulse (Fig. 1, element 12). The multipliers, adders and delays of Hashimoto are structures together so that the sine wave generator in Hideyasu will be automatically generate by an impulse since the sine wave generator is independent from the focus loop, therefore, it is obvious to have the automatic sine wave generator of Hideyasu to have multipliers, adders and delays as suggest by Hashimoto. The claims Therefore, claims 1-8 are not patentable in view of Hideyasu and Hashimoto et al.

In regards to claim 15, applicant’s arguments is persuasive, with respect to the rejection(s) of claim(s) 15 under Hideyasu in view of AAPA have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Katayama in view of AAPA.

Allowable Subject Matter

Claim 20 is allowed.

In regards to claim 20, none of the reference alone or in combination discloses a method of calculating the average value for the signal output from the focus loop filter during a focus on; generating a waveform and adding the waveform for the focus search and the average value and performing the focus search within a predetermined focus search range based on the average value.

Claims 41-45 reason for allowance was in the last office action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamakawa et al discloses an apparatus of focus search on multi-layers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINH T. NGUYEN whose telephone number is (571)272-5513. The examiner can normally be reached on 10:00am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN
December 2, 2008

/Wayne Young/
Supervisory Patent Examiner, Art Unit 2627